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ABSTRACT

This paper summarizes a 1982-83 descriptive evaluation of first year implementation of 15 regional teacher service agencies in California, referred to as Teacher Education and Computer Centers (TECCs). Self-report data and case studies from three regions were used to describe the configuration of the centers, their service delivery, and perceived success and problems. Implementation was powerfully affected by the environment of each agency. On the whole, service delivery was dominated by computer training, with an apparent reduced level of training in curriculum and instructional methodology. Scope of responsibility, governance issues, and relationships with business, industry, colleges, and universities are problematic, due in part to a lack of standard routines for sharing resources among agencies, and in part to ambiguity in the initial authorizing legislation. This paper includes four sections. Section I discusses the study methodology. Section II provides a summary of reported TECC services including: (1) service delivery; (2) resource brokerage and capacity building; (3) computer use; and (4) relationships with institutions of higher education and other agencies. In section III, three TECC case studies are offered, and section IV contains analysis and discussion. Three lengthy appendices are included: (1) Legislative Language: Budget Act 1982-83; (2) Self-Report Data Collection Instrument; and (3) case studies of the three TECCs. (JMK)

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IMPLEMENTATION OF TEACHER EDUCATION AND COMPUTER CENTERS IN CALIFORNIA: RESULTS OF A FIRST YEAR DESCRIPTIVE STUDY

Prepared for AERA

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INTRODUCTION

This paper summarizes a 1982-83 descriptive evaluation of first year implementation of 15 regional teacher service agencies in California, referred to as Teacher Education and Computer Centers. Self-report data and case studies from three regions were used to describe the configuration of the centers, their service delivery, and perceived successes and problems. Implementation was powerfully affected by the environment of each agency. On the whole, service delivery was dominated by computer training, with a reduced level of service in math and science curricular/instructional methodology training. Scope of responsibility, governance issues and relationships with business, industry, colleges, and universities are problematic, due in part to a lack of standard routines for sharing resources among agencies, and in part to ambiguity in the initial authorizing legislation.

The implementation of educational policies is conditioned by both the nature and strategy for installing the innovation or policy (Shoemaker, McLaughlin, and Marsh, 1979; Berman, 1980), and the environment in which the innovation or policy is to be implemented (Meyer, Scott, Deal, 1981; Pfeffer and Salancik, 1978). Beyer, Stevens and Trice direct our attention in their study of federal personnel policies to the pervasiveness, magnitude, innovativeness, and duration of the innovation (1983). Berman, et al., in a study of California's School Improvement programs, describes policy implementation as a product of the relation between policy content and the organizational characteristics of where the policy is to be installed. (He refers to the organizational factors as situational constraints or opportunities.) (Berman, 1983)

Implementation of the Teacher Education and Computer Center initiative in California illustrates the interaction between policy content and characteristics of the organizational environment.

The Teacher Education and Computer Centers (TECCs) were created in former Governor Jerry Brown's 1982 Budget Act. Regional centers were authorized and funded to provide staff development for teachers and administrators across the curriculum, but especially in science, math, and computer education. The centers were located to reflect the general attendance areas of the California State University system (see Figure 1) and were situated in county offices designated by regional county superintendents. In all but three cases (Los Angeles, San Francisco, and Orange Counties), TECC service areas span county lines. There is considerable variation in the numbers of counties and teachers served. Three single county agencies serve over 100,000 of the state's 180,000 teachers, while another three, serving seven, nine, and eleven counties, support staff development for only 23,000 teachers.

Each TECC was made responsible for the staff development functions formerly addressed by the Professional Development and Program Improvement Centers and the School Resource Centers to provide training in elements of effective instruction and to provide resources to build school site capacities for self-sustaining staff development. In addition, each TECC was charged with design and implementation of a computer demonstration center to support the acquisition of computing skills by teachers and students. A computer software library and clearinghouse was established in San Mateo County (Region 8) for the evaluation and dissemination of courseware and as a support to the TECC computer demonstration centers. A math teacher retraining project also was established in Los Angeles County (Region 12) to retrain credentialed teachers to be qualified in teaching mathematics.

Figure 1. Regional Map

*San Mateo Software Library and Clearinghouse

**Math Teacher Retraining Program

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Background

Philosophically, TEC Centers represent an amalgam of the teacher assistance centers combined with an emphasis on computer technology and a commitment to access resources from business and industry and colleges and universities. The TECC initiative was intended to incorporate existing programs into a single statewide system for providing staff development on a regional basis. The dominant focus of each approach was folded into the new initiative and new agencies were built in areas where none existed before. However, many of the tenets of teacher centers pervade the TECC philosophy.

- Teachers need experiential, supportive environments where personal and professional growth can occur. (DeVaney, 1977)
- Teachers and school staff are equally (if not more) important resources for one another's staff developers than external consultants or agencies. (Little, 1981)
- Schoolwide staff development depends upon the commitment of administrators as well as teachers. (Joyce, Bush, 1981)
- Multiple organizational levels can usefully provide teachers and school staff with in-service resources. (Elmore, 1983)
- Staff development must be ongoing and built into the overall program of a school to really facilitate school improvement (Joyce and Bush, 1981).

Existing teacher service agencies have been partially incorporated into the TECC network. All but one of the regions was formerly supported by a School Resource Center, a PDPIC, or a Federal Teacher Center. Approximately $2 million of the total TECC budget was designated for incorporation of existing teacher service agencies, and this task has been only partially accomplished. For the most part, existing agencies had good staff development reputations and established clienteles. Not surprisingly, many were ambivalent about modifying their service delivery from a limited audience to provide services for a more regional constituency. Thus, incorporation of these 15 to 20 centers was gradual, and while some relied on the TECC program for funding, others secured

private or district support to continue their operations. Thus, existing teacher service agencies need to be taken into account when the TECC service delivery is analyzed.

The TECCs are governed by designated county offices and policy boards which share joint authority to set policy and give direction to TECC staff. TECCs provide both direct and referral services to schools, teachers, and other staff development agencies within their regions. Funding is based on an ADA formula, and in 1982-83 included a basic operating budget ($100,000), capital outlay for computers and related materials ($105,000), and transition monies for designated centers to incorporate existing service agencies. The 1982-83 statewide budget for the TECCs was $6,303,000. (This amount was increased by 3 percent in 1983-84 to $6,500,000.)

Table 2 summarizes the three TECC service delivery functions together with their general governance provisions.

I. METHODOLOGY

Three questions guided the study:

1. Given a permissive legislative initiative, how do the centers vary in organization and governance?
2. What was the balance (depth and level) of services provided across the three service functions (teaching methodology, resource brokerage/capacity building, computer use)?
3. What kinds of relationships did the agencies establish with business and industry and colleges and universities, for cooperative staff development work?

No attempt was made to determine "effectiveness of services." An assessment of the impact of TECC services on teachers and school behavior seemed inappropriate because the agencies were only established in October 1982.

Information on TECC activities was collected in two ways:

1. Self-reports of services delivered were maintained by each TECC. This baseline data provided documentation on training workshops, direct services, referral activities, and computer-related resources. Table 1 describes each site demographically.
2. A set of case studies provided information to illustrate in detail the variation in environment and governance and service delivery in three regions.

The three case study regions were selected on the basis of geographic/demographic diversity, history of service agencies in the region and alternative approaches to service delivery. Case studies are only examples, and as such case study accounts should be read as illustrations of particular problems and approaches to TECC implementation and not as characteristic descriptions of all TECCs.

TABLE 1

TECC Population with Case Studies Noted (*)

TECC county regions/LEAs	Counties served	Teachers (approx.)	Location of computer demonstration centers	Location of other training sites
1. Humboldt	2	1,500	Eureka	Crescent City, Hoopa, Miranda
2. Tehama	9	5,000	Red Bluff (dev.), Redding (early op.), Oroville (operating)	Butte Co. PDC, Redding Co.
* 3. Marin	6	7,500	San Rafael, Napa, Sonoma, Vallejo, Ukiah, Lakeport	
4. Sacramento	11	7,500	Sacramento, Auburn, Marysville	Placer Co.: Auburn; Yuba Co.: Marysville
5. San Francisco	1	4,300	San Francisco	
6. Alameda/ Contra Costa	2	13,000	Radio Shack, Pine Valley, Hayward, Mt. Diablo, Liberty, James Logan, Los Cinos	Alhambra, Berkeley, Antioch, Cal State Hayward, Contra Costa Co. Office, Lawrence Lab, San Ramon V.C.
7. Stanislaus	7	13,000	Modesto	Merced City Schools, Mabel Barron School, UOP, Tuolumne Co., Calaveras Co., Livingston High, Merced, Madera Co.
8. Santa Clara	5	22,000	Santa Clara, San Mateo, Monterey	Del Mar High, Eisenhower, Graham, Ley Va, Los Altos Hills, Sierramonte, Wilcox, Abbott, Bayside, Bowditch, Carlmont
9. Ventura	3	10,000	Ventura, Santa Barbara, San Luis Obispo	
10. Kings	3	12,000	Kings, Fresno, Tulare Counties	
*11. Kern	3	4,000	Bakersfield, Tehachapi	Inyo, Mono
*12. Los Angeles	1	70,000	Los Angeles Co. Office	3 high schools, 1 jr. high, 4 mobile vans, 1 LAUSD site
13. Riverside	2	10,000	Riverside	Mobile van, Upland, Desert Sands (Indio), Victorville, San Bernardino
14. Orange	1	28,000	Brookhaven School	Orange Co. Dept. of Education, West O.C. FTC, Niguel Hills Jr. High
15. San Diego	2	16,500	San Diego Co. Office Instructional Resource, Imperial Co. Office Res.	San Diego City Schools, East N. Coastal, N. Island, S. Bay Area Centers

TABLE 2

Functions of Teacher Education and Computer Centers (TECCs)

GOVERNANCE	GENERAL PROVISIONS
1. Regions assigned by State Superintendent of Public Instruction. 2. Executive Boards, made up of county superintendents, select individual LEA and design configuration of center, including melding existing teacher service agencies into TEC Centers. 3. Executive Boards establish policy boards, made up of a majority of teachers. 4. Policy boards select TECC staff, design budgets, and set service directions. 5. Policy boards award AB 551 (Article 1) grants for local school site staff development programs (mini-grants).	1. Sixty percent of money to be used in math, science, with computer emphasis. 2. Required to establish cooperative efforts with colleges and universities, and provide outreach to business and industry to get their assistance.

SERVICE DELIVERY

TEACHING METHODOLOGY	RESOURCE BROKERAGE/ CAPACITY BUILDING	COMPUTER USE
Provide training and follow-up for teachers and administrators in research-based practices for improving instructional methodology.	Assist school site staff to provide staff development through: 1. Needs assessment activities 2. Assistance in staff development planning 3. Matching resources and needs 4. Training trainers, and/ or providing training for school staffs 5. Ensuring follow-up	Establish demonstration lab to: 1. Train teachers at multiple levels of computer use (awareness, classroom application/program writing). 2. Provide opportunities for students and teachers to work with computers. 3. Demonstrate and advise schools on purchase and use of hardware and software. 4. Help teachers develop and pilot curriculum materials and software. 5. Provide information on administrators' use of computers. 6. Work with the Software Clearinghouse.

Study data were collected through a spread-sheet reporting form, developed with clients, and structured interviews conducted in each of the cases.

The spread sheet was organized around the three main TECC functions which were teaching methodology and training workshops, resource brokerage/capacity building services, and computer use. TECC staff were requested to record all events and activities within each function (see Appendix B).

Case studies were conducted using structured interviews with directors, staff consultants, policy board members, host administators, clients, and other staff development providers. These interviews were structured around the following issues.*

Environment/context of the region (demographic trends, history, reputation, and priority of staff development in the service region)

Organization and governance of the TECC (center configuration, relationship with the county offices, function and roles of the governing boards, and the roles of the TECC directors and staff)

Delivery of services (criteria for service delivery, methodology training, direct consulting and referral services and computer training)

Relationships with other agencies (institutions of higher education)

Case study data were collected by two State Department of Education staff who visited each of the three case study sites on at least two occasions during February and March, 1983. Baseline data documenting services were tallied and reported for 14 of the 15 regions. Breakdowns by client, content, and service character were tabled and summarized.

*Copies of case study interview guide available upon request.

II. SUMMARY OF REPORTED TECC SERVICE DELIVERY

This section summarizes 1982-83 self-report data of TECC service delivery. Data were maintained for approximately six months, and collection dates are not totally consistent across regions as agencies built in prior service centers were able to begin service delivery sooner than organizations created in environments devoid of teacher centers or a history of staff development.

Service Delivery

The teaching methodology TECC function is a major carry-over service from prior teacher assistance center activities (primarily the Professional Development and Program Improvement Centers). Research on instructional strategies associated with improved student achievement is used to design trainings for teachers in motivation and learning theory, specific strategies for diagnosing student learning needs, prescribing appropriate learning basics, and reinforcing, monitoring, and adjusting student progress. Central to the TECCs' delivery of instructional methodology is the training of trainers concept, whereby trainees later become trainers themselves and provide classroom follow-up to other teachers. Table 3 summarizes the teaching methodology and training workshop participation from 14 of the 15 regions during the initial implementation months. Reported are: the number of workshops, sessions, hours, participants, and availability of follow-up. Note the large number of courses offered in computer use and instruction. On the average, each TECC offered about 105 workshops which served 3,180 participants. Follow-up was available 55 percent of the time.

TABLE 3

Summary of All Teaching Methodology and Training Workshops

	I	II	III	IV	V
Training by type	Number	Number of sessions	Number of hours	Number of participants	Availability of follow-up
Curriculum:	187	441	1,630	7,584	133
Average workshop		2.4	8.7	41	71%
Instruction:	353	824	4,638	11,379	230
Average workshop		2.3	13.1	32	65%
Instructional supervision:	76	255	1,481	1,748	35
Average workshop		3.3	19.5	23	46%
School management:	170	236	1,043	4,536	158
Average workshop		2.18	13.5	21	93%
Computer use:	646	1,244	4,285	13,558	231
Average workshop		2	7	21	36%
Other (conferences):	46	180	549	5,553	30
Average workshop		3.9	12	120	65%
Total workshops:	1,478	3,180	13,626	44,358	817
Average workshop		2.15	9.2	30	55%

Resource Brokerage and Capacity Building

Helping site staff access and provide their own staff development was the second major function of the TECCs.

As suggested by Elmore, improving and supporting the capacity of local organizations to deliver services is key to policy implementation in complex settings (1983). There are no formulae, recipes, or specifications as to "how" capacity building is best accomplished, but a central way is to train teachers and administrators at the school site in site-based improvement efforts. Other resource brokerage/capacity building activities of the TECC include:

- Assisting staff in conducting needs assessments and writing proposals for state and federal funding

- o Advising staff purchase and care of computer equipment and training
- o Planning staff development programs with teachers and administrators
- o Conducting and evaluating staff development activities in a particular school
- o Identifying/accessing resources from other agencies

The TECCs encouraged local capacity by providing direct consulting services to clients and by linking clients to other staff development agencies or resources.

Table 4 provides a sample breakdown of referral services in 13 of the 15 TECCs over a five-day period in February 1983. Categorizing these kinds of services is very difficult because they're so specialized, but this does give a flavor for the kinds of services requested. Computer use dominates these services; more than half of the services delivered contained computer use instruction (n = 489). These data show 64 percent of the direct service decisions were based upon client requests only. A site visit was made approximately one-third of the time and in only 12 percent of the cases was a written needs assessment made. However, as discussed earlier, there are persuasive arguments against automatically conducting regional written needs assessments given the availability and use of good data that already exist within the regions.

The data also document the type of services provided to the TECC regions, and reflect whether or not TECCs modified their service requests. Of the 807 requests, service was provided on an "as requested" basis 87 percent of the time (column V), while 11 percent of the requests involved "other" service requests (presumably documenting situations where the TECCs convinced clients to modify their service requests).

Finally, in the breakdown of persons served, the totals of direct service data indicate that the majority of persons served by the TECCs were teachers

(58 percent) with administrators as the second largest group (24 percent). Only 6 percent of the persons served were classified employees.

TABLE 4

Direct services broken down by content and type of information used in decision making

		Information used in decision making services provided						Approximate number of persons served			
		I	II	III	IV	V	VI	VII	VIII	IX	X
Content	No. of requests	Client request only	Site visit	Verbal needs assessment	Written needs assessment	Provided as requested	Other	Teacher	Administrators	Classified staff	Other
Curriculum	35	21	17	10	6	25	2	345	72	20	60
Instruction	49	41	12	23	20	42	2	601	154	110	113
Instructional supervision	21	10	2	8	5	16	2	52	194	10	0
Management	126	37	26	14	7	117	3	613	208	32	11
Computer use	489	342	176	166	54	431	71	5,013	877	496	1,184
Other	87	72	28	18	5	67	10	181	248	46	7
Totals	807	523	261	239	97	700	90	6,805	2,753	714	1,375
Average per TECC	57	37	18	17	6	50	6	(486)	(196)	(51)	(98)

N = 13
Time = approximately five days.

Individual TECCs received several hundred phone calls per week requesting services. However, we were not able to disaggregate direct services of TECCs with those referred to outside agencies. Table 5 is a sample of the referral agencies which TECCs cited in one week of 'referral' services. Notice the high number of referrals to county office staff and to private consultants.

A persistent issue in referral services is how to ensure the quality of service from other agencies. Most TECCs had both formal and informal criteria for rating their referral agencies because the quality of the referral reflected back on the TECC. Previous experience with an agency or consultant, client

feedback, or written evaluations/recommendations by reputable sources were the key criteria used, although this remains an area of concern.

TABLE 5

One Week Sample of TECC-Referred Sources

Individual or agency	Calls
1. Other TECC	141
2. County office	93
3. District or school	32
4. State Department	9
5. Other teacher agency	17
6. SERN (special education)	3
7. Clearinghouse	7
8. IHE	40
9. Business	6
10. Private consultant	96
11. Vendor	27
12. Computer using group	8
13. Other	79
Weekly referrals average 47 per TECC	558

TECCs were given responsibility in the 1982-83 fiscal year for oversight and administration of the AB 551/1977 local Staff Development initiative (Hart). Three hundred and ninety elementary and intermediate schools (K-8) and 250 senior secondary schools (9-12), from 276 school districts, received AB 551 grants in 1982-83 for school site staff. TECCs were responsible for:

- Disseminating information about the grant
- Providing training and assistance in proposal writing

- o Coordinating policy board awards to sites, and
- o Facilitating site grants by providing human and fiscal resource to support program implementation

Computer Use

Demonstrations and training in computer use, computer literacy and programming represented the largest demand for, and provision of, services during the first-year TECC activities.

Data in Table 3 reflect the predominance of services in the computer technology and appear to confirm director comments about the over-subscription of computer courses, to the detriment of training in other areas.

In addition to formal training, the TECCs also had other responsibilities in the computer use function, including:

- o Demonstrating use of microcomputers and software in instructional settings
- o Advising teachers and administrators on questions of use, purchase, evaluation, and
- o Maintenance of software and hardware

TECCs obtained software from multiple sources. The Budget Act set aside $120,000 for a Software Library and Clearinghouse located in the San Mateo County Office of Education as a support to TECC computer programs. The Clearinghouse provided the TECCs with previewed and evaluated collections of software; information and assistance about decision making for hardware and software purchase, use, maintenance, and support; and software evaluation training. In addition, the Clearinghouse facilitated TECC acquisition of public and private software collections.*

*The Minnesota Educational Computing Consortium is an example of a private organization that made software available to the TECCs via license agreement.

It is important to keep in mind that no two TECCs were alike in their varied and creative approaches to acquisition and use of computers and provision of training for teachers. For instance:

- o One TECC had no formal computer demonstration center at all; rather, the TECC's staff used school and county offices hardware for both demonstration and training purposes along with some of their own 'TECC' software (and other local resources as available/appropriate).
- o Another TECC had three 'satellite' demonstration labs in geographically isolated regions. Teachers visited these labs which were located in the county offices of each area to attend computer resource demonstrations. In addition, a computer staff specialist brought a microcomputer along on site visits, and training sessions were conducted at schools which already had microcomputers in use.
- o Several TECCs had large demonstration sites that housed microcomputers from the four or five of the major educational vendors. These computers were used in the training workshops and were situated so the workshop participants could work in pairs with 10-15 microcomputers.
- o Two TECCs supported mobile vans which were driven to school sites on request. Once on site, the microcomputers were unloaded for demonstrations in school classrooms.

These examples illustrate the consequences of legislative allowances for variation in implementation. Given the diversity of educational environments and needs, discretionary choices in implementation are essential.

Relationships with Institutions of Higher Education (IHEs) and Other Agencies

TECCs were also directed to establish linkages with both IHEs and local business and industry to elicit their support in providing services and resources through the TECCs. In-service training for elementary/secondary teachers has

historically been provided through individual enrollment in post-secondary courses. Connections to the teaching process and sustained relationships for improved instructions were presumed but rarely played out. TECCs were encouraged to work with IHEs to provide in-service teacher training, though relationships were neither mandated nor conditioned by SDE policies.

Similarly, TECCs were directed to identify and procure resources--both financial and instructional--from business and industry. Because the private sector is considerably more sophisticated than the educational community in computer technology, the TECCs were encouraged to identify and pursue private sector resources.

TECCs did establish both formal and informal relationships with IHEs in their service regions. However, with notable exceptions, these were largely weak connections. A base of resources to support initial contacts with IHEs seems important. For example, the Los Angeles County contracted with four public and private colleges and universities for math teacher retraining. As a result, approximately 200 teachers are now being trained and prepared for the supplementary math credential and the national teachers' examination in mathematics. In addition, some of the TECCs co-train teachers in the Bilingual Teacher Training program. Nonetheless, TECCs found that IHEs are traditionally not disposed toward in-service training staff development activities, and incentives need to be developed to improve working relations.

Similarly, TECC relationships with business and industry were isolated and infrequent in 1982-83. TECC staff were the most successful in building relationships with the computer industry which has a dual incentive to donate equipment and resources to schools. General access to business people with the decision-making authority to share resources with schools was a continuing problem for TECC staff.

III. CASE STUDIES OF THREE TECCs

A long-term ethnographic study of day-to-day interactions and user outcomes between the staff, workshops, and products of the TECCs was impossible to do in this analysis. However, in an effort to describe the variation in service and both the problems and possibilities offered by the regional service centers, case studies of three TECCs were conducted by OPER staff.

As outlined in Section I, the cases were selected on the basis of variability in background (e.g., existence of former agencies), and current service delivery. Case selection was designed to capture the widest possible variation in TECC environment and context, organization and governance, service delivery, and relationships with other agencies. In addition, particular issues specific to each case were highlighted. Each of the cases summarized by this study was a "snapshot" of their TECC.

Case Study A describes a wholly new teacher/school service agency operating in a rural setting and experiencing much of the excitement and "turf" problems of any nascent organization. The "catch-22" in Case Study A was that in the attempt to provide adequate service to an enormous geographical region, the TECC compartmentalized services by county and lost some of the regional character of the initiative.

Case Study B was at the opposite end of the geographic spectrum. The geographical area was not large and was totally metropolitan. Rather than put a new organization together, the TECC reconfigured and incorporated multiple agencies and services within the region. The case study attempted to trace the interrelationships among the multiple agencies in this single county TECC, some of which had been incorporated and others which had chosen to remain autonomous.

Case Study C described both a TECC and two non-TECC agencies serving a suburban/rural area of six counties. This case was somewhat like Case Study B, in that both regions were formerly served by high quality school resource centers, federal teacher centers, and PDPICs. However, the focus in the former was on the different kinds of services that the TECC and non-TECC agencies provided and, in particular, the importance of district- and school-based service centers which were more field-responsible because they had a narrower mission than the TECC.

For the sake of brevity, the cases were omitted from this paper, but are included in Appendix C.

IV. ANALYSIS AND DISCUSSION

This report documented initial TECC implementation including descriptions of how the TECCs were organized, their initial service delivery functions, and their relationships with other agencies. Case studies, conducted in three TECC regions, documented the complex decision-making and delivery activities of the TECCs, and put summary data in an implementation context.

TECCs provided an enormous array of services during their initial implementation year (1982-83). Self-report data indicate that there was high demand and delivery of services, particularly in the computer technology area. Teaching methodology and training were provided at multiple levels, particularly in instructional strategies training and curriculum support for mathematics and science. Resource brokerage and capacity building services were also provided to individuals and schools within regions to help school staffs become their own 'staff development providers.' Finally, TECCs provided their regions with access to diversified software and hardware computer resources, while the TECCs themselves were supported by a software library and clearinghouse and a series of computer institutes.

It's important to keep three points in mind regarding the implementation activities of the TECCs. First, TECC agencies are organizationally quite young; the Budget Act creating them was passed in mid-summer, 1982, and county education agencies did not begin formal work on their configuration until the fall. Thus, this study only describes their incorporation and configuration efforts in the six to nine months of initial operation (October 1982 through March 1983). Second, individual TECC agencies started with very different backgrounds. While most regions historically had been served by some form of staff development center, several regions did not have such agencies; thus,

their configuration represents a wholly new organization. Third, the TECC networking function is only beginning. In order to reach their long-term goal of providing comprehensive high-quality services, organizational capacity, and the trust of clients are essential, and developing these elements take time to develop.

What lessons are there to be learned from the study of early organizational implementation? The variety of legislative initiatives creating, revising, and, in some cases, recreating, service delivery systems, suggests that we need to study implementation throughout the process. Given the long-chained delivery system in education, identification of salient implementation features might help us shorten the distance from legislative appropriation to school district, classroom, teacher, and student. Summarized below are three "common sense" generalizations emerging from the study of TECC implementation. All seem "common sense" on the surface, and yet each conditions implementation and needs to be taken into account when structuring an educational delivery system.

1. The "rational" approach to dividing the state into regions had district service consequences. Regions were designated by the State Superintendent to reflect the boundaries of the California State University system. However, there were no legislated provisions linking regional agencies to the CSU system, and the agency-IHE ties are weak (with a few notable exceptions). IHEs have typically not had strong relationships with elementary-secondary teaching, and perhaps a stronger incentive system or structural mix is needed (e.g., joint IHE-county office governance).

   Similarly, the size and configuration of the regions resulted in massive geographic and demographic diversity within and between service areas. One case study region serves less than 4,000 teachers, in an area spanning 21,000 square miles, while two other regions serve 40,000 to

70,000 teachers in a single metropolitan area. Linguistic and cultural diversity as well as the norms for providing/using staff development resources differed widely. Thus, a regional assignment, based on geographic and demographic characteristics which acknowledges local staff development histories, while less rational, might have supported early focusing on region-specific needs.

2. Staff development history conditions quality of service delivery.

The quality of training varies considerably by TECC, based on the history of staff development in the area. Seven of the 15 agencies are largely reconfigurations of old teacher centers, all of which supported some form of advisory committee, to assist in center governance. However, one region had no experience with staff development on a "teacher center" organization. Most of the 1982-83 TECC delivery services were in the math, science, and computing areas, and services areas of 14 agencies were consistently in these three areas. However, the depth of training (awareness, skill-building, or training for trainers) varied by, within, and between agencies. Agencies incorporating professional development and program improvement centers tended to have trainings of longer duration and spend more time at a limited number of schools.

However, given these local contexts and the need for legislation to be adaptive to local and regional constraints, a service agency like the State Department of Education needs to develop strategies to provide technical assistance on a differential basis, and encourage agency/peer support of service delivery.

3. Legislated flexibility in appropriate implementation strategy encourages variation but creates ambiguity.

The flexibility in the TECC initiative provides fairly broad discretion for regional, county-level variation. Building in structural flexibility in how TECCs were configured had both benefits and liabilities. Broad permissive provisions in the legislation allowed local decision-making about county-to-county relationships, staff and policy-board authority relations, and priorities in service delivery.

Policy board responsibilities and decision-making authority varied by TECC. Boards set service priorities within the general state guidelines, but there was considerable variation in board involvement in direct service delivery. Some directors operated fairly autonomously, while other policy board members were routinely consulted about day-to-day service decisions.

This ambiguity in TECC decision-making authority among policy boards, county superintendents, and county boards is a continuing concern in the TECC initiative. In most cases, TECC service areas span county lines. At the same time, TECCs are embedded within the county office jurisdiction and management structure, which complicates service to counties other than the designated LEA.

In summary, the TECCs had an enormous task during their initial implementation year to become "umbrella" agencies for coordinating staff development activities within regions. On balance, they seemed to be making good progress toward delivering high quality services. However, they discovered that establishing credibility and building the trust necessary to create an agency network takes time.

The 15 Teacher Education and Computer Centers are at very different levels of implementation. Implementors began with different levels of readiness, and have differential support from the environment for using their services. Thus, program delivery, program attributes, and program impacts vary widely.

- In about one-third of the centers, curricular/instructional methodology training of trainers in math, science, and computing, are going. Training is of fairly long duration (6 to 15 weeks) and staff are available to provide support for their trainees as these individuals provide training and coaching support in districts and schools. Computer training and technical assistance continue to dominate both demand and delivery, but staff are able to balance provision of computer training with other staff development efforts.
- In a second group of TECCs, a variety of training and consultant activities are occurring. This group of centers, while enthusiastic providers, are in part not as strong due to weak histories of staff development in their regions, and diffused missions of the center. Nevertheless, they are providing training, primarily in computing, and, to some degree, in instructional methodology but within a much less comprehensive staff development system.
- A final group of centers are still in the beginning stages of implementation, but are far from floundering. These agencies are working in organizationally problematic and geographically unfeasible regions, where limited resources can only go so far. The types of problems they are encountering include: governance issues, particularly in areas not formerly served by teacher centers, lack of adequate resources to meet the demand for services, and lack of attention to curricular trainings in areas other than computing.

As a relatively new initiative, TEC Centers have had a remarkable impact on the landscape of staff development in California. During the 1982-83 academic year, more than 13,000 persons were given beginning and, in many cases, advanced computer training. In addition, more than 12,000 persons received training in

content and methodology of math and science. Nevertheless, there is a much reduced market for math and science content training, and relatively weak links among the community of staff development providers.

The success of the TECCs today is in large part attributable to the base established by the regional service centers upon which they were built. There aren't any one or two things that made TECCs "work." However, responsiveness to their clients, focusing efforts on what they can do well, and balancing short-term awareness activities for large numbers of people, with more intense, long-term work with schools, seemed to be associated with the successes reported by staff, clients, and observers.

APPENDICES

APPENDIX A

TECC Budget Act Language (FY 1982-83)

Item	Amount
6100-191-001--For local assistance, Department of Education, Staff Development (20.50)	12,736,000

Provisions:

1. Funds appropriated by this item are for transfer by the State Controller to Section A of the State School Fund for direct disbursement by the Department of Education, in lieu of the amount which would otherwise be appropriated for staff development and resource centers pursuant to subdivisions (a) and (b) of Section 74 of Chapter 894, Statutes of 1977, for the purpose of making allowances pursuant to Article 1 (commencing with Section 44670), Article 2 (commencing with Section 44680) of Chapter 3.1 of Part 25, and Article 10 (commencing with Section 44630) of Chapter 3 of Part 25 and Article 4 (commencing with Section 52180) of Chapter 7 of Part 28 of the Education Code according to the following schedule:

(a) School Personnel Staff Development (20.50.010)	8,848,000
(b) Teacher Education/Computer Centers (20.50.020)	6,403,000
(c) Bilingual Teacher Training Centers (20.50.020)	735,000
(d) Instruction Development and Exemplary Programs (20.50.030)	3,100,000
(e) Unallocated reduction	-6,350,000

2. The $4 reimbursement rate specified in Section 2, Chapter 966, Statutes of 1977, shall be increased to four dollars and sixty-two cents ($4.62) for the purpose of allocating funds scheduled in Category (a).
3. Funds appropriated in this item for staff development activities shall aid teachers and site administrators across the curriculum, including support for science, mathematics, computer education, reading, writing, the humanities, and the arts. Funding proposals developed by Teacher Education Centers and local school site councils shall specify what variety of curriculum areas, teachers, and site administrators will be assisted.

   Curriculum-wide staff development other than mathematics and science skills shall be supported in each of 19 regions by funds appropriated in this item through (a) $600,000 of the funds allocated for expanding and extending Teacher Education Centers, and (b) $2,900,000 of the funds allocated for expanding local school site staff development.
4. From funds appropriated in this item for exemplary programs, $1,250,000 shall be allocated for replication of the Demonstration Mathematics and Reading Program pursuant to Chapter 4 (commencing with Section 58600) of Part 31

Item	Amount

of the Education Code, provided that the funds shall be allocated to local education agencies on an in-kind or otherwise matching basis.

5. Of the funds appropriated in this item for exemplary programs, $880,000 shall be allocated as follows for the purpose of Mathematics, Engineering Science Achievement Program, provided that $440,000 in matching funds are obtained for this program.
   (a) Secondary School Programs 220,000
   (b) University of California 300,000
   (c) California State University 360,000
   If less than $440,000 in matching funds are obtained, then the amount allocated for this program shall be reduced to the amount of matching funds provided. The reduction shall be applied pro rata. Upon certification by the program of available matching funds, the Superintendent of Public Instruction shall transfer the amount specified for secondary school programs to the Mathematics, Engineering Science Achievement Program and shall transfer the amounts specified for the University of California and California State University to the respective institutions for expenditure in the Mathematics, Engineering Science Achievement Program.
6. Notwithstanding any other provision of this item, the Superintendent of Public Instruction shall adjust the amounts specified in schedules (a) through (d), inclusive, of Provision 1, and the amounts specified in Provisions 2 through 5, inclusive, to reflect the unallocated reduction specified in schedule (e) of Provision 1. The adjustment shall be approved by the Director of Finance and reported to the Chairperson of the Joint Legislative Budget Committee and to the chairpersons and vice-chairpersons of the fiscal committees not more than 90 days following enactment of this act.

APPENDIX B

Documenting TECC Service Delivery: Data Collection Instrument

Directions and Glossary of Terms for Use

The TECC service delivery instrument is for use by center staff to maintain a running account of center activities. Data should be useful for TECC self-study, as well as for legislative review of the implementation process. The instrument is currently designed for manual entry, but, in the future, we hope to have data collection on disk for microcomputer use.

The instrument is organized by four TECC functions:

I. Teaching Methodologies and Training Workshops
II. Brokering Services
III. Direct Consulting Services
IV/V. Computer Hardware and Software

Section I. Teaching Methodologies and Training Workshops

Forms T100-T600 are for describing organized workshops and formal training sessions which are routinely not adapted for particular audiences: e.g., five-week course on elements of effective teaching and instruction or a computer applications course. Insofar as possible, distinguish workshop activities by their focus (curriculum, instructional supervision, school management, computer use, other).

Section II. Brokering Services

Form B100 is for describing services which link clients with non-TECC resources. Identify a particular block of time (1-3 weeks) and report client name, school type, information used in decision making, service requested, and agency providing service (e.g., linking a school improvement project manager with a non-TECC county consultant).

Section III. Direct Consulting Services

Form D100 is for describing tailor-made services which you provide clients directly. These services vary both by site and by occasion, and encompass site-specific training activities, leadership consulting, and planning for staff development activities. We are interested in historic records of these services, but if you don't have them, please identify a particular block of time (1-3 weeks) and report client name, school type, information used in decision making, service provided, and descriptive information about service (e.g., meeting with site administrators to plan a staff development program for teachers on classroom computer use). We recognize that reporting the brokering and direct consulting functions is a time-consuming process, but we feel that it is important to capture these activities at least on a limited basis. Please let us know if you have any ideas for streamlining this process.

Section IV/V. Computer Hardware and Software

Forms H100 and S100 are for describing the equipment and software you currently have in operation at any of your computer demonstration lab sites. Please use a separate form for each satellite location, and we will aggregate

the information by TECC. Include each mobile van as a "site." Standardized training in computer use should be recorded in Section 1 (Teaching Methodologies and Training Workshops). Direct services designed for individual audiences should be described in Section III (Direct Consulting Services).

Section I. Teaching Methodologies and Training Workshops (T100-T600)

Within the teaching methodologies and training workshops function, activities are to be recorded by content type. All organized workshops and formal events need to be documented. Use your own judgment for indicating the primary content area (e.g., a workshop primarily on math content, but with some instructional applications would be recorded curriculum). The six types of content for describing workshops/training programs are:

Curriculum	"What is being taught, with what instructional materials." Included are activities which are primarily concerned with materials and document generation, or subject matter instruction. Example: math/science learning modules.
Instruction	"How something is taught." Included are activities which are primarily concerned with teaching methodology, learning styles, classroom management, and instructional techniques. Example: workshop on teaching styles.
Instructional supervision	"The observation and management of educational experiences by individuals." Included are activities primarily concerned with one person in the role of supervisor helping another person in the role of supervisee to master a professional role. Peer training in clinical teaching and administrative/supervision and evaluation are included here. Example: long-term clinical supervision.
School management	"Leadership and schoolwide problem-solving capabilities." Included are activities focused on the school as an organization--how groups interact, how problems are analyzed and acted upon, and how schoolwide improvement occurs. Also included here are leadership training activities, not related to instructional supervision. Example: writing an SIP application; training on how to do staff development.
Computer use	Instruction in computer technology. Included are activities primarily concerned with computer awareness, teaching individuals how to use hardware, software, or classroom applications and programming instruction. Example: course in BASIC or PASCAL.
Other	Anything which doesn't fit into the first five categories. Included are activities for teacher personal self-improvement. Example: financial planning, personal time-management.

All events/activities in which the TECC provides organized, formal staff development workshops should be documented here. Record workshop title under primary content category (curriculum, instruction, instructional supervision, school management, computer use, other).

Column	
1-2	Region number.
4-13	Last name of person most frequently completing instrument form.
15	First initial of this person.
17-26	Last name of TECC director.
28	First initial of TECC director.
30-35	Date of initial entry on this page.
37-40	Number of page in this section--begin with 01 and reproduce as many pages as necessary.
47-60	Enter title of workshop: Abbreviate where possible and leave space between words. Example: REM MATH.
62	Indicate level of training (if known): Enter 1 if an introductory or awareness course. Enter 2 if comprehensive or advanced training is provided. Enter 3 if program/workshop is to "train trainers."
64	Indicate availability of follow-up to individual teachers or administrators (regardless of use or number of occasions): Enter 1 if follow-up is available. Enter 2 if no follow-up is available.
66-68	Enter total number of sessions in workshop. Example: 004.
70-72	Enter total number of hours participants are in workshop. Sum hours across all sessions. Example: (004 x 3 = 12).
74-90	Enter number and type of staff conducting workshop. Example: (74-75) 02 (83-84) 02.
92-94	Enter total number of workshop participants.
96-102	Indicate numbers of participants, either from service region or outside service region. Leave blank if unknown.
104-123	Indicate participant job assignments (if known).

Section II. Brokering Services (B100)

Events and activities in which the TECC provides referrals for clients to other resources for staff development support should be recorded here. Where feasible, a running log is most appropriate. If not possible, a sample of brokering services will suffice.

Record school, agency, or client group by name, and indicate service characteristics.

Column	
1-2	Region number.
4-13	Last name of person most frequently completing instrument form.
15	First initial of this person.
17-26	Last name of TECC director.
28	First initial of TECC director.
30-35	Date of initial entry on this page.
37-40	Number of page in this section--begin with 01 and reproduce as many pages as necessary.
47-60	Enter name of client: Abbreviate where possible and leave a space between words. Example: Hamilton ELEM.
62	Indicate whether a school receives SIP funding, if known. Enter 1 if yes. Leave blank if no.
64	Indicate whether a school receives AB 551 funding, if known. Enter 1 if yes. Leave blank if no.
66	Indicate whether a school receives neither SIP nor AB 551 funding. Enter 1 if known. Leave blank if unknown.
68	Enter 1 if service decision based solely on client request.
68-74	Documents the information used in decision making about services to be delivered. Enter 1 in any columns which apply. Leave other columns blank.
70	Enter 1 if TECC staff made site visit within current fiscal year.
72	Enter 1 if TECC staff verbally solicited information about staff development needs from person(s) other than initial requestor.
74	Enter 1 if a written needs assessment was used in service delivery decision.

Column

76-106 Documents service provided.
Enter name of referral agency/person: abbreviate where possible and skip column between words: e.g., Lancaster software.

107 Enter 1 if TECC has had previous positive experience with referral agency or person. Leave blank if unknown.

109 Indicate whether client followed up with TECC regarding service. Enter 1 if client informed TECC about service. Leave blank if unknown.

Section III. Direct Consulting Services (D100)

All events and activities in which the TECC provides direct consulting services to schools or agencies should be documented here. Where feasible, a running log is most appropriate. If not possible, a sample of direct consulting services will suffice.

Record school, agency, or client group by name, and indicate service characteristics.

Column

1-2 Region number.

4-13 Last name of person most frequently completing instrument form.

15 First initial of this person.

17-26 Last name of TECC director.

28 First initial of TECC director.

30-35 Date of initial entry on this page.

37-40 Number of page in this section--begin with 01 and reproduce as many pages as necessary.

47-60 Enter name of client: Abbreviate where possible and leave a space between words. Example: Hamilton ELEM.

62 Indicate whether a school receives SIP funding. Enter 1 if yes. Leave blank if no.

64 Indicate whether a school receives AB 551 funding. Enter 1 if yes. Leave blank if no.

66 Indicate whether a school receives neither SIP nor AB 551 funding. Enter 1 if known. Leave blank if unknown.

Column

68-74 Document the information used in decision making about services to be delivered. Enter 1 in any columns which apply. Leave other columns blank.

68 Enter 1 if service decision based solely on client request.

70 Enter 1 if TECC staff made site visit within current fiscal year.

72 Enter 1 if TECC staff verbally solicited information about staff development needs from person(s) other than initial requestor.

74 Enter 1 if a written needs assessment was used in service delivery decision.

76-94 Documents service provided.

76 Enter 1 if the service provided was generally the same as requested.

78 Enter 1 if service provided was other than requested. Attach documentation if reasonable (e.g., example).

80-94 Enter approximate number of persons served on site by role.

Cols. 80-82 Teachers
Cols. 84-86 Administrators
Cols. 88-90 Classified staff
Cols. 92-94 Other

96-100 Indicate total number of hours on-site, or in consultation with clients:

Enter total hours before decimal point.
Enter partial hours after decimal point for brief events.
(Example: 2-1/2-hour consultation = 2.30).

102-112 Indicate primary content of service event. Enter 1 in selected column (only one entry) 102-112 reflecting major content of service provided.

Col. 102 Curriculum
Col. 104 Instruction
Col. 106 Supervision
Col. 108 Management
Col. 110 Computer
Col. 112 Other

Section IV. Hardware Resource List (H100)

This section provides a list of hardware at any site where computers are used for demonstration or training. Microprocessors and peripherals should be listed, although minor components need not be. If you take equipment with you for training or consulting, do not report here (report as consulting or training). However, do record county or school equipment routinely used as part of TECC activities. Use a separate sheet for each site.

Column

1-2 Region number.

4-13 Last name of person completing form.

15 First initial of this person.

17-26 Last name of TECC director.

28 First initial of TECC director.

30-35 Date of initial entry on this page.

37-40 Number of page in this section category--begin with 01 and reproduce as many pages as necessary.

47-60 Enter name of hardware of peripheral. Abbreviate where possible and leave a space between words. Example: IBM Personal Micro.

62-78 Indicates source and number of units of each type.

62-63 Enter number of items purchased by TECC.

65-66 Enter number of items donated to TECC.

68-69 Enter number of items leased or borrowed from school site as part of computer demonstration lab activity.

71-72 Enter number of items leased or borrowed from county site as part of computer demonstration lab activity.

74-75 Enter number of items leased or borrowed from local business as part of computer demonstration lab activity.

77-78 Enter items leased or borrowed from other locations as part of TECC activities.

80-86 Indicates how hardware is used in site labs. (Enter 1 in as many columns as apply.)

80 Enter 1 if used primarily for demonstration.

82 Enter 1 if used in classroom instruction or training.

84 Enter 1 if used in management activities.

86 Enter 1 if used for other functions.

(If hardware is used for all functions, a 1 should appear in each column by the item.)

Section V. Software List (S100)

This section provides a list of software program packages at any site where computers are used for demonstration or training. Program packages, rather than individual programs, should be listed. Also, record county or school software routinely used as part of TECC activities. Use a separate sheet for each site.

Column

1-2 Region number.

Column

4-13 Last name of person completing instrument form.

15 First initial of this person.

17-26 Last name of TECC director.

28 First initial of TECC director.

30-35 Date of initial entry on this page.

37-40 Number of page in this section--begin with 01 and reproduce as many pages as necessary.

47-60 Enter name of software package. Abbreviate where possible and leave a space between words. Example: Computo Art Levels K-3.

62-69 Indicates source and number of software packages of each tape.

62-63 Enter number of packages of this type from public domain (but not from Clearinghouse).

65-66 Enter number of packages of this type from commercial sources.

68-69 Enter number of packages of this type from San Mateo County Clearinghouse.

71-75 Indicates type of use of the software. Leave blank if not used for instruction or management (e.g., games).

71 Enter 1 if software is used primarily in instructional applications.

73 Enter 1 if software is accompanied by courseware materials.

75 Enter 1 if software is used primarily in management applications.

77-79 Indicates whether or not the software has been evaluated (by you or by others).

77 Enter 1 if software evaluated by you. If not, leave blank.

79 If software evaluated by you, make appraisal of quality on basis of 1-5 scale (internal evaluation).

Enter 1 if not useful (neither reliable nor credible).
Enter 2 if marginally useful, but not adequate for classroom use.
Enter 3 if useful.
Enter 4 if adequate, useful, ready for guided classroom use.
Enter 5 if consistently reliable, credible, and classroom ready.

81 If software evaluated by others, make appraisal of external evaluation on basis of 1-5 scale. If unknown, leave blank.

Enter 1 if external evaluation (neither reliable nor credible).
Enter 2 if external evaluation marginally useful, but not adequate for classroom use.

Column

81 (cont.) Enter 3 if external evaluation useful.
Enter 4 if external evaluation adequate, useful, ready for guided classroom use.
Enter 5 if external evaluation consistently reliable, credible, and classroom ready.

83-87 Indicates perception of software use.
Enter 1 in Cols. 83, 85, or 87, depending upon your personal perception of the use of this particular software package.
Enter 1 in Col. 83 if software is seldom used.
Enter 1 in Col. 85 if software is used.
Enter 1 in Col. 87 if software is frequently used.

APPENDIX C

Cast Studies of Three Teacher Education and Computer Center Regions

REGION A

Environment and Context

The Region A TECC is located in the Clark County Office of Education in south central California. The center serves three counties, 60 districts, and approximately 3,900 teachers. Service delivery is complicated by the geographical vastness of the region which covers 21,000 square miles. The population is racially, ethnically, linguistically, and economically diverse and, while 90 percent rural, includes areas of substantial population (200,000) and pockets of linguistic minorities (@ 5,274 LES/NES).

Organization and Governance

The size of the service area, and the desire of the more rural counties to retain control over staff development services, strongly influenced the configuration of the new center. The three county superintendents agreed that the Clark County Office of Education would be the LEA and would provide necessary administrative and support services among the three counties. However, in order to provide equitable distribution of funds and promote equal opportunities for service among the three counties, a budget of $221,595 was divided among the three counties. Based on county FTE, the most highly populated areas received $126,000 and the more sparsely populated areas received $27,000 and $24,000, respectively. The LEA retained $44,000 for regional expenses.

The distribution of funding directly to satellite agencies had definite trade-offs. On one hand, it was responsive to the rural county concern that they receive adequate funding for services. However, doing so resulted in the creation of county policy boards and a regional board which made TECC governance more complex.

The advantage of this type of governance structure was the possibility for increased participation from those who might benefit from the services.

However, the political complexity of trying to respond to four different, though overlapping, boards was considerable due to disputes about service priorities and resource allocation. Several members of one board expressed concern that the TECC did not allocate enough resources directly for computer training and felt that the county should support TECC consultant salaries, inasmuch as several of the staff who provided service "formerly worked for the county." (Actually, the TECC only supported 1-1/2 FTE and most county consultant services were donated.) In addition, executive board partitioning of the funds among the three counties limited the decision-making authority of the policy board. A policy board member commented:

> Right now, much of the resources are tied up in salaries and existing programs, so there isn't money for new programs.

It's not surprising that decisions about executive board, policy board, and staff responsibilities and authority took a lot of time in this region. Unlike most of the other TECCs, this region had not historically been served by teacher agencies. Consequently, the first year's agenda was taken up with organizational governance issues: putting together a policy board, selecting staff, identifying service priorities, and beginning to provide services. The four boards and services were teacher dominated, but actual levels of board decision making and levels of services varied by county.

Delivery of Services

The TECC supported a director and one part-time staff member who was responsible for computer demonstration and training activities in the central county office. In addition, in each of the other county offices, county staff worked with the TECC to direct regional programs, provide training in instructional improvement strategies and computer use, and provide technical assistance to AB 551 schools. Because of the isolation of services by county, it was impossible

to accurately depict service delivery as a whole region. For example, in one county, service delivery was dominated totally by local efforts to make the area "computer literate." In another county, only 60 percent of the TECC's efforts were devoted to computers, while 40 percent of their efforts were spent training teachers and administrators in instructional improvement strategies.

In the initial year, the Clark TECC Office only offered the methodology services which they knew they could do well. Four previously trained county consultants provided instructional improvement strategy training under the TECC rubric.

All three counties in the region made substantial use of existing microcomputer facilities. By the end of the case study, only $15,000 had been spent on computer equipment in the whole region. In Clark, approximately $5,000 had been spent on hardware with the bulk of training focused on awareness level activities for teachers and site visits to assist administrator adoption of computers as management tools.

In Sheridan County, 90 percent of the staff development efforts were in the computer area. Ten thousand dollars were spent on computer equipment and $8,000 on consultant services to train staff in the use of the equipment in classroom settings. And, in Lodge County, the project manager reported that at least 80 percent of the county TECC budget was allocated to computer trainings mostly at the awareness level. The rest of the budget for participation in training of trainer activities was allocated to the Clark County Office.

All three counties participated in AB 551 staff development programs. Following training sessions at the Clark County Office, 15 schools were approved and funded for AB 551 projects (ten in Clark, one in Sheridan, and four in Lodge). Because of the size of these schools (average ADA = 443), each received fairly small amounts of money. The result was that much of the staff

development activity was short-term and confined to Saturday workshops and after-school activities. For example, the TECC office located in Clark County provided three all day computer training activities at the awareness levels on Saturdays for the five schools located in their area. The other five AB 551 schools attended activities as they were able, but distances remained a factor. The TECC director commented:

> We've tried to make our services open to everybody. That has been one of the policies of our policy board, that all of the TECC services are available to all teachers in all districts at all times. Anytime we offer a service--even if it is in a small district--any of the teachers around are welcome to come. They are always encouraged to come. However, they have a problem with the distances. To come from Circle is eight hours one way. From Bidwell, it is about six hours.

While the geographical distances made commuting for workshop participation difficult, the enthusiasm for computer applications in the classroom was sufficient that teachers and administrators were making personal sacrifices to participate. In Conley, teachers and administrators traveled 120 miles three successive Saturdays to be trained in BASIC at a community college. According to the school's dean over two-thirds of her staff (about 30 people) were attending awareness and classroom applications courses at their own expense.

Relationship with Other Agencies

Community colleges and state universities in the region were interested and supportive of TECC activities, although some concern arose because they didn't feel the TECC was doing enough, fast enough. (Presently, three IHE representatives serve on the regional policy board, and have put together a 1983 summer workshop for math and science teachers on classroom computer applications.) The TECC calendar was maintained on a local community college computer. In addition, businessmen in some of the rural areas were providing use of privately owned computers for school use. One special education teacher, trained as a

TECC software evaluator, was able to use software on a commercial computer for classroom instructional experiences. Asked how other TECCs might replicate contacts with business and industry, the teacher said:

> Support from business people must be done on their terms--as one business person to another. The TECC needs to identify a staff or county person who will broker the business and industry connection, visit the Chamber of Commerce, Kiwanis, and other service clubs, and let the business community know that the schools need their assistance with computers, money, and technical assistance. This person should also have a good relationship with the policy board--because that's where a lot of these business people are.
>
> Then, find teachers who are excited about working with the computer, regardless of whether or not they know how. What they need is enthusiasm, and a willingness to commit time to working with the equipment before rejecting the technology.
>
> Finally, the TECC person can link individual teachers with individual business people. That personal relationship is real important.

At an organizational level, one of the large computer companies allowed the Clark County TECC to use their regional training center which housed 25 microcomputers. However, much work remained to be done in working with both IHEs and business and industry.

Science and math curriculum and instructional methodology training took a back seat to computer training in the Region A TECC during the first year of implementation. Putting together the organization and working to create a "regional" structure took time.

The TECC's priorities for the next year could be broken down by counties and included:

- Improving the quality of software libraries, upgrading computer training to an applications/literacy level, and expanding the clinical supervision program by training more trainers (Clark County)

- o Maintaining their focus on computer training and applications, and moving into effective teaching methodology training as they are able (Sheridan)
- o Centralizing computer hardware in the county and conducting a comprehensive math/science needs assessment before moving into instructional methodologies training (Lodge)

Discussion

All of these goals seemed appropriate and doable. The catch-22 was that the fragmentation of services made redundancy likely, and the problems created by geographical distance might require that service in the region be county-specific. As the associate superintendent put it:

> The distance factor and the need to make effective use of available money force us to fragment the regional character of the staff development network. Nonetheless, the TECC concept gets people talking on a common ground that maybe they would not have had the TECC not given us the organizational wherewithal.

REGION B

Environment and Context

The Region B TECC, based in an urban county office, serves one county with 95 districts and approximately 65,000 teachers in a geographical area spanning 4,083 square miles. The region's student population of 1.2 million is racially and economically diverse and has an LEP/NEP population of about 207,000 students.

Historically, the region has been served by a variety of staff development agencies which are, in part, integrated into the current TECC operation. This is a description of how a new network was put together by utilizing existing services, incorporating some agencies, and developing services where needed. The county school resource center, in operation for four years, was totally incorporated into the TECC and its director was elected as TECC director. Similarly, the Belmont School Resource Center, in operation as a federal teacher center for three years and a school resource center for one year, was incorporated into the TECC. The former director now serves as a regional training specialist to the TECC and manages both service delivery from the old center and coordination of instructional improvement training.

Three other regional agencies have looser ties to the TECC but are in part supported by and coordinate services with the network. A university-based federal teacher center has historically served a single large urban district. The federal teacher center was reluctant to join the TECC fearing loss of resources and autonomy of decision making about staff development offerings. Eventually the district agreed to both support the university-based teacher center and participate in the TECC effort. To ensure district service from the TECC, the head of district staff development sits on the TECC's policy board (as well as a parent and teacher representative), a district staff developer is paid by the

TECC and works exclusively for the district, and the TECC supports a $40,000 classroom program at the university teacher center.

Two regional PDPICs also chose to formally remain outside the TECC agency, so their network activities remained with the regional offices. The Grove PDPIC is a highly developed center with a good reputation and is led by one of the state's finest staff developers. The center provides high quality training in instructional improvement strategies to a single district and anticipates operating autonomously in the future (in part because of the demands for service from the district). Their link to the Region B TECC is the participation of a PDPIC staff member on the TECC policy board. Similarly, the Seale PDPIC, which is supported by a grant from the TECC, brokers some TECC services and operates independently from the regional agency. At this time, the future relationship of the service center is unclear because the TECC believes it can't support the center at such a high level, yet the PDPIC wants to maintain its autonomy. The director said: "It just isn't cost effective for us or our clients."

Given the multiple and diverse agencies providing service, it's impossible to generalize about the reputation of the prior offerings. However, while many of the offerings individually were of very high quality, there was little overall regional coordination. Thus, the TECC took as its major goal:

> . . . leadership in staff development planning and training in a coordinated package. We provide in-service training for teachers and administrators, and training of trainers, but we can't afford to take a "quick fix" approach to staff development.

The TECC serves a single county which minimizes some of the geographical governance problems encountered by other regional agencies. The center seems to be a high priority with the county administration as evidenced by numerous citations in county presentations, the presence of administrators at TECC activities

both within and outside of the region, allocation of limited county office space for a central TECC location, and verbal commitment to maintain the TECC even if the state eliminates the regional funding base.

Organization and Governance

Officially, the TECC functioned as a unit within the county office, and the director was accountable to the division of curriculum and instruction and the county assistant superintendent of educational programs and services. A 19-member policy board, initially composed of former school resource center policy board members and five regional representatives from TECC-designated areas, made broad programmatic, fiscal, and personnel recommendations to the TECC. However, on a day-to-day basis, the TECC was governed by a politically astute director who worked with seven full-time and five contractual part-time staff members that were responsible for identified areas of service delivery.

The director had general budget and programmatic authority, although the policy board made line-item approval of overall expenditures. Unlike some of the other TECC centers, the director made fairly autonomous budgetary decisions. Because the TECC represented only a single county and was able to incorporate the political interests of the major urban district, there had not been a need for an executive board. Further, while the policy board was not "proactive," the director was adamant about the board's independence:

> If this board didn't approve of what we were doing, they would definitely let us know. We have a clear picture of the directions they expect this TECC to take. We try to anticipate their desires and make presentations to them in an organized straightforward manner about project implementation. There have been few disagreements about our implementation strategy.

Conversations with several board members confirmed this appraisal.

Clearly, an operation of this size had a substantial budget. The total TECC budget of $1.5 million was allocated to transition and operational sub-budgets as well as direct costs for hardware and indirect costs for support agencies. Table C-1 describes the approximate budget allocations (expressed in thousands) and reflects the gradual incorporation of existing agencies.

TABLE C-1

University-based district teacher center (training 750 people in discipline model)	$ 40,000
PDPIC Center 1 operations (Grove)	20,000
PDPIC Center 2 operations (Seale)	20,000
SRC teacher center (Belmont)	17,000
Equipment including:	475,000
o Set-up costs for six training sites	
o Three vans for mobile computer training	
o Software review lab	
Salaries and personnel benefits	300,000
Contract consultant salaries	400,000
Indirect costs @ approximately 4 percent	60,000
Reprographic costs	50,000
TOTAL	$1,399,000
BUDGET	$1,494,865

The budget is likely to be modified because of less than a year in operation, and reduced equipment costs because the bidding process guarantees hardware contracts to the lowest bidder.

According to both the TECC director and staff, political trade-offs in putting together a new regional service agency were inevitable. Change was incremental, and initiating a new delivery system for staff development meant bringing different agencies with different priorities and staffing capabilities into the network as they were ready. Support from the large urban school district, from the highest levels of the county administration, a broadly representative policy board with real decision-making authority, and a superior staff contributed to the success of the current governance structure. However, gradual rather than wholesale incorporation of existing centers was a necessity.

Delivery of Services

The concept of empowering districts and schools to provide their own staff development undergirded the Region B TECC philosophy. Although they provided direct service to schools and districts, their primary focus was on the training of trainers and schoolwide staff development leadership so that school people could become resources for one another rather than rely upon a regional agency for direct service. For example, when the TECC advertised software review training, over 800 people responded. And, while these people were trained to conduct software evaluation, the demand for first-level training precluded the TECC from providing training for trainers.

The TECC was attempting to embed computer technology within a comprehensive staff development program which included:

- Training trainers in instructional methodology and supervision
- Training trainers in the integration of computer technology into classroom instruction
- Management development training for administrators
- Development of six regional computer training sites
- Planning, assistance, and appraisal of school site AB 551 projects

- o Coordination of math teacher retraining project--also funded under the 1982 Budget Act
- o Coordination of the Bilingual Teacher Training Projects (BTTPs) that were funded by AB 1379/1981

All of the consultants on the TECC staff were labeled "staff developers," but their responsibilities broke down along programmatic outlines: two worked primarily with computing, two with staff development for managers, one on bilingual teacher training, one with AB 551 schools, and all seven (including the director) with the delivery of staff development to districts. The three trainers were loosely assigned to regions and specialized in microcomputing, clinical supervision, and liaison work with the large urban district.

No systematic needs assessment had been conducted by the TECC as an agency. However, several of the incorporated regional service centers had conducted needs assessments of their own service areas, and a 1982 survey of computer hardware and software was conducted throughout the county. The staff expressed concern about mounting large-scale needs assessments at the teacher level. (Typically, these surveys are both out-of-date before they're analyzed and capture "wants" much more than needs.) Thus, the TECC conducted informal needs assessments with current clients, schools, and staff to get a mix of needs and wants. In addition, the county provided a profile of student, teacher, and school information to districts which the TECC used with schools in discriminating about staff development approaches.

Thus, service decisions were based upon (a) client demands; (b) reports of effective prior service; and (c) center staff appraisal of fields needs. The TECC had clearly taken the priority of offering math, science, and computer technology to heart, and approximately 70 percent of their workshops reflected this focus. However, it was impossible to accurately monitor the 60 percent funding stipulation because service delivery overlapped descriptive categories.

For example, direct services were provided to school managers about schoolwide implementation of computers for managing attendance data. Workshops on staff development strategies for microcomputer specialists, who will ultimately be providing training for school people, also reflected the computer focus but were embedded in a more complex delivery approach.

In order to make a solid impact where they could make the most difference, the Region B TECC staff decided not to offer services which were low impact. "We have to train specialists to teach people how to meet school site requests rather than teaching them ourselves," said the director. Thus, the TECC's staff made referrals to county and external consultants and agencies for clients to pursue services they couldn't provide. The TECC averaged 120 telephone calls a day which were logged and referred to appropriate consultants. Staff decided whether and how to meet each request using their individual discretion.

The major problem with brokering others' services was the lack of systematic data about the quality of these services. The TECC was building a resource bank of people whom they knew provided quality service. Based on direct referrals, the TECC anticipated interviewing potential consultants for referral. Quality control was an important issue because services offered under TECC auspices reflected the credibility of their organization. Hence, staff were concerned that consultants, from whatever level, met their quality criteria. This included some quality control of district, county, and state trainers. Staff felt that if the TECC was to build and maintain good rapport with the field, they needed to ensure that everything offered under their rubric was useful.

Training methodology. Training in instructional methodology was provided through three TECC satellite operations including the PDPIC at Seale and at the Belmont School Resource Center. As of March 1983, these centers had trained 170 teachers and 90 administrators in elements of TESA, BTES, and the Joyce and

Hunter instructional improvement models. Both sites had established fine reputations for offering quality training. During the implementation year, the TECC staff and five trainers provided direct services to teachers with classroom coaching and follow-up.

In subsequent years, the TECC staff indicated their philosophy will be to train district trainers to conduct the training with teachers thus meeting the TECC goal of "empowering," rather than just "delivering," staff development. The TECC staff also indicated they hope to spend more of their time in the future refining the models for how the training is delivered rather than doing it themselves. In addition, the regional trainer in charge of clinical supervision was being trained in the SDE's Effective Classroom Training Model and will be training trainers to offer this six-day clinical supervision model to district recipients of state minigrants.

A key issue was how to provide continued support for trainers. The director said:

> During the past four years, working intensely with four or five teachers at only a few schools, I was able to monitor quality control and provide continued support for people. In the current delivery mode, we provide methodology training for a more geographically diverse area where we may have only one or two teachers from a single site; and we don't always provide the training ourselves. Thus, we have less over-time classroom support for teachers and there is much less direct contact with persons actually conducting the training. While we are able to provide much more training--and diffusion of the model, the key is to ensure that we maintain our trainers, and that they, in turn, maintain their teachers. Ultimately, I would like to establish two or three sites and make them model schools. We would thus be providing the intensive training of whole staffs on a limited basis, and send out training of trainer candidates to those locales.

In addition, the director hoped to more fully incorporate the professional development centers that provided the clinical teaching and supervision into TECC operations.

Service to AB 551 schools. Assistance to AB 551 schools, both in the application process and in technical assistance for delivery of staff development, was a major service provided by the TECC. One of the consultants had been designated as responsible for services to these schools. Ten workshops were conducted with volunteer school/district staff on how to write the AB 551 staff development proposals. Ultimately, proposals were received from 115 schools representing 34 of the 95 districts. Each district then sent staff to read proposals from other candidate schools. Criteria included: specificity of objectives; capability of carrying out plans; adherence to AB 551 guidelines; emphasis on math, science, and computing; and availability of support services.

Ultimately, 54 new 7-12 schools were fully funded, three were partially funded, and 24 programs were augmented from the previous $4.63 to $7.00 per ADA which resulted in a total AB 551 allocation of $973,000. The TECC met with all applicants to discuss most effective use of funds with recipients and ways in which nonfunded schools could implement ideas without funding.

Site visits were made to two (of the regions' 106) AB 551 schools, selected by the TECC consultant as long-term implementors, whose principals were knowledgeable about the AB 551 process and school site implementation process. Principals in both the mid-SES high school and high-SES junior high attributed success in site implementation to:

- Teacher control for program focus and budget allocations
- Informal dissemination of ideas, products, and enthusiasm in the faculty lounge and teachers' meetings
- Long-range implementation of a program (three to six years) that provided over-time opportunities for teacher involvement

Teachers informally reported that their principal's involvement in the staff development programs (equal opportunities in the classroom, assertive

discipline, and computer literacy) motivated and sustained site activity. In addition, AB 551 monies were cited as directly responsible for articulation opportunities between elementary, junior high/high, and high school; development of a parent education handbook for introducing attendance area parents to the junior high; and development and dissemination to students and other district teachers of a computer literacy curriculum (level 1: awareness; level 2: applications).

Two issues in the AB 551 site visits were noted: (1) How to involve the reluctant teacher (quoted from a teacher active in the AB 551 project):

> Teachers who need it the most are usually the last to get on board with staff development programs--but you can't gear a program toward those individuals. Staff development is contagious: you don't need to push them very much. Once other teachers discuss productive training opportunities in the faculty lounge, even the most reticent teacher doesn't want to miss out.

(2) The merits of TECC administration of AB 551 grants (quoted from principals of junior and senior high schools):

> It's a good idea. The state is too far away to provide us with real technical assistance or link us to good county consultants. But the district represents too narrow a constituency for a delivery system. If staff development dollars go directly to districts, the results will be: loss of in-service through board negotiation to maximize teacher time with students; and internecine struggles among district schools over who got how much money to do what.

Bilingual teacher training program. The TECC augmented the funds of the bilingual teacher training program (BTTP) (funded under AB 1379/1981) to provide methodology and content training for bilingual teachers on waiver. The BTTP had been coordinated with TECC activities in order to provide a more rigorous methodology training for teachers and add a computer training component. Because the BTTP was part of the TECC, the TECC was able to use workshop leaders and curriculum guides for nonwaiver teachers in culture and methodology. Approximately 1,000 nonwaiver teachers were being served in language, culture,

and methodology. Because of their affiliation with the TECC, the BTTP was also able to provide teachers with computer training.

Management development training. Numerical counts failed to capture the diverse, multiple, and reinforcing nature of Region B TECC activities. The management development component was supportive of the training in instructional improvement strategies and AB 551 assistance and, like them, was offered in a variety of modes that reflected various levels of complexity.

At an initial level, management training attended to the importance of good instructional practice with a focus on classroom teaching and elements of effective instruction. Four one-day awareness workshops in situational leadership were offered to school administrators to promote instructional leadership and build long-term staff development commitment. Staff development and supervision skills comprised the second level of training, where the focus was on the role of manager in providing in-service training for teachers to improve climate and teaching skills. Managerial competence training dealt with a set of skills related to the running of the organization. Administrators received training in participatory management, gaining commitment, and using democratic decision-making processes in the management of their schools. Finally, institutional improvement comprised the fourth level of training, where the focus was on generating school improvement strategies by training administrators to be instructional change agents.

Two two-day series of time management workshops for site administrators and clerical support staff provided training in alternative time management strategies. Long-term management training also was provided twice a month to approximately 20 middle managers from a local district, where all four levels of the model were introduced. The components of the program were based upon the notion that comprehensive staff development training was incrementally built

through awareness "seeding" activities followed by training individuals and then teams. As one consultant put it:

> Getting a bunch of principals together from different schools doesn't have the same effect as providing services to principals and their support staffs including classified, professional, and administrative personnel.

Computer training and development activities. Several delivery systems were used to develop computer competency for teachers and school managers. Both awareness and applications courses were provided at six regional service centers and were selected on the basis of site interest, security, access to teachers, and quality of facilities. Sites included two high schools, one junior high school, one elementary school, three mobile vans, and a demonstration center at a large urban district office and at the county office.

The demand for computer training was extremely high and the TECC provided both standard format workshops and direct services which were tailor-made to particular sites. As of March 14, 1983, the TECC had provided:

- Eight two-day trainer of trainer sessions for people with microcomputer know-how but little staff development expertise (approximately 350 people)
- Eight one-day workshops on decisions for school administrators on developing school site plans for computer instruction (approximately 320 people)
- Fifteen two-and-one-half-day workshops on software evaluation training (approximately 600 people served)

In addition, each of the seven staff members made twice weekly site visits to provide direct services to schools on how to develop computer capacity, conduct staff training, and implement computer technology on site.

Finally, the computer consultants provided direct services to task force groups setting policy on computer use within the region. "Well over a third

of our time is spent directly on work with computers and much of the rest with computer-related activities," said one of the consultants. However, a central message of both workshops and direct counseling services was the necessity of embedding computer use in sound instructional methodology training. This was to ensure that the computer would become a tool for the teaching/learning/managing process.

Relationship with Other Agencies

The TECC coordinated a large math teacher retraining program with four colleges and universities in the region. Cooperative programs were designed to provide mathematics and methodology training for 20 teachers working toward a supplemental math credential, and/or sufficient mathematics experience to pass the national teacher exam to qualify for an additional credential authorization. While the delivery model was fairly comprehensive, participants and training institutions indicated five major concerns:

1. Teachers need refresher mathematics courses before entering the prescribed math courses.
2. The prescribed math courses necessary for crednetialing are too extensive to be completed by participants in one year.
3. College/university mathematics methods courses do not emphasize generic effective teaching methods as they relate to mathematics teaching.
4. A one-year training model doe snot allow adequate time for training in mathematics methods.
5. Appropriate methodologies need to be modeled by college and university instructors.

Thus, the TECC had mixed relationships with colleges and universities. College and university instruction was generally not designed for teacher staff development purposes. IHEs did not have much flexibility in which courses

they offered, interdepartmental coordination was low, offerings were limited, instruction was most frequently lecture/discussion, and IHE professors were not inclined or trained to model alternative teaching styles.

The TECC staff felt they could have ensured more teacher support if they developed their own curriculum with selected staff and then identified an IHE for determining credit. The existing IHE bureaucratic routines and traditional delivery modes seemed to limit teacher enrollment and support for IHE courses.

Finally, TECC staff believed the structures of the credentialing system do not reflect current job requirements. The state math credential has no requirements for either computing skills or methodology training. Thus, colleges and universities may have little incentive to provide them, unless they perceive their own futures as tied to the computer revolution.

Discussion

The TECC director anticipated that future TECC operations will be divided more equally between development work in trying out new staff development models and providing training and support to field trainers. The director also predicted that the consultant staff will provide more leadership in the comprehensive planning of district and school site staff development rather than provide direct training themselves. However, doing so seemed conditional upon establishing a system of quality control for trainers.

The TECC staff planned to broker computer training out of the regional training center's labs as well as provide higher order computer skill development courses. Plans included: courses in personal literacy and classroom applications, training in schoolwide use of computer technology, and training for hardware/software selection.

The TECC planned to model a telecommunications network across the region and use computers for managing TECC records, files, and consultant word processing.

The Region B TECC had operationalized a lot of functions: methodology training for teachers and administrators; site capacity building through AB 551 technical assistance; computer training at awareness, applications, and literacy levels; and coordination of other initiatives with TECC activities.

The TECC was built from the resources, linkages, and training capacities of three or four other service agencies and was staffed by professionals who had built solid reputations for quality service over many years. Thus, while the "umbrella" of TECC consisted of a new label and a new network, the components of it had been tried and adopted over time.

While the TECC's staff viewed their activities as "networking--an umbrella," the basic unit of change remains the school site. And, while the TECC could act to coordinate resource sharing, link clients to one another, and act as a motivator, the key to the TECC's influence on school effectiveness was building a small group of respected change agents at a school and working to involve the entire staff at that locale. Thus, TECC staff had to work cooperatively with agencies who had a more narrow mission in order to deliver the kind of services needed for real school improvement.

REGION C

Environment and Context

The Region C TECC serves six geographically diverse counties in northern California, represents approximately 7,500 teachers, and encompasses 8,692 square miles. The region historically has been supported by a variety of staff development agencies including district and county consultants and six regional service centers three of which have been incorporated into the TECC. This is the story of Region C which describes, in particular, how the incorporated and unincorporated agencies function together to provide staff development services to the region.

Governance and service delivery in the region are complex and somewhat problematic. Two of the six counties are geographically isolated, and, while one supported a PDPIC, neither of the two rural counties had delivered the depth of service provided by the four southern counties. Further, there is limited networking among districts, counties, schools, and teacher service agencies, although there is formal cooperation among the PDPICs.

The three incorporated centers include a school resource center and two PDPICs; they are all managed by statewide leaders in the delivery of teacher center services.

Organization and Governance

The six county superintendents and representatives of the existing regional service centers designated the location of the LEA in September 1982. While the TECC was housed within a county office and coordinated functions with county management, it operated fairly independently guided by a policy board whose chair acted as informal liaison to the director for day-to-day decision making.

Table C-2 illustrates membership on the Region C policy board which was nominated by the county superintendents and modeled after the unincorporated

Teacher Learning Center Board. The policy board was dominated by teachers representing primary, intermediate, junior high, high school, and special education personnel with three persons specifically trained in computers or science. While the LEA superintendent was ultimately responsible for the TECC budget, the executive board had given budget responsibility to the policy board who selected the TECC director and made major programmatic decisions. The executive board, composed of the six county superintendents, met on an "as needed" basis--in this case, twice--once to select the LEA and, on a second occasion, for an update on TECC activities. The executive board was committed to the TECC concept as an umbrella agency for staff development, and their trust in the staff was evidenced by the relative autonomy under which the agency operated.

TABLE C-2

Membership on TECC Policy Board

Position	County					
	1	2	3	4	5	6
Teachers	2	2	2	1	2	3
School administrators	1		1	1		1
Other administrator (vocational education county)		1			1	
Parent			1	1		
IHE	1				1	
Business		1				
County superintendent (executive board representative)		1				

In 1982-83, the TECC supported three full-time and two part-time consultants who each worked out of a county office and had primary responsibility for the three TECC functions. Based on policy board direction, the TECC concentrated services in its implementation year on instructional methodology, the development of computer-related resources--both demonstration labs and training opportunities--and the improvement of math and science instruction.

Delivery of Services

Seventy-five thousand dollars had been allocated to the teaching methodology and training function. Reflecting policy board priorities, approximately 150 teachers of math, science, and computers were prepared as trainers of trainers in math and science. The training was offered at various levels to meet participants' experience. At the introductory level, new skills and instructional behaviors were built into a review of the elements of effective instruction (four days). At a second level, teacher trainers developed clinical supervision skills (four days); and, at the advanced level, practice was provided in management of training and adult education (four days). The TECC was planning opportunities to be made available in the fall of 1983 for follow-up observation and formative evaluation as this first cohort of trainers worked with teachers in both instructional methodology and content settings. The TECC was also providing and brokering content workshops to schools in math and science.

Of its total budget allocation ($435,000), the TECC spent approximately $45,000 on the computer component (staff salaries, $36,900; equipment, $4,500; and software for county microcomputer operations, $3,600). All six county offices maintained microcomputer demonstration sites which the TECC used to provide training. One hundred twenty thousand dollars of the $435,000 was used as transition funding for the six initial staff development agencies in the regions.

The TECC also sponsored awareness, applications, and programming courses in computer use. Approximately 1,500 to 2,000 teachers (one-third of the teachers in the region) received introductory level training in computers. In addition, the following computer use applications and management courses were provided:

- o Word processing for teachers
- o LOGO classes using electronic spread sheets for business education teachers
- o PASCAL class for high school computer teachers to prepare teacher to teach PASCAL
- o Computers as a tool for school in management for building administrators

The high demand for computer training prompted the TECC to concentrate their resources in the computing area. Moreover, since this was a relatively new field, 65 percent of these services during the first year were at an awareness level while about 35 percent of the training actually developed computing skills.

School site capacity building was encouraged through TECC services to both new and continuing AB 551 schools (28 schools within the region). Of the $107,600 allocated to the TECC for AB 551 projects, $30,400 went to continuing programs and approximately $71,083 for new applications. In awarding the grants, the policy board gave attention to school size and equitable distribution among counties. Proposals for site-based staff development were judged along the following criteria:

- o Merits of the proposal
- o How a school's plan fits into the district staff development program
- o Feasibility of implementing proposed tasks
- o Perceived likelihood of the project "making a difference"

Budgetary constraints on AB 551 expenditures made site implementation difficult. In small AB 551 schools, the level of received resources was so low that schools couldn't afford to purchase any hardware (they had a 25 percent hardware ceiling). For example, if a school received only $800 (based on $7 per ADA), they were limited to approximately $200 for computer use which kept them out of the market. According to the director:

> Schools need a waiver. They might benefit more by being able to buy a computer for teachers to experiment with, than trying to spread $800 around on computer fairs and software that teachers have to travel to use.

Finally, the TECC put together a resource bank for brokering regional services. Although the bank was still in the developmental stage, a computer specialist had catalogued an array of people trained in the region to provide computer awareness, applications, and literacy courses. The TECC believed the resource bank would include regional consultants in math, science, and instructional methodology during the coming months.

Relationship with Other Agencies

Part of the TECC Handbook suggested that TECCs work with other agencies to network staff development services for the region. Establishing credibility with other agencies, business and industry, and IHEs seemed critical if the TECC was to be an effective hub of staff development activities within its region. Region C was a unique case because the regional staff, in addition to county office consultants and district staff developers, was supported by three service agencies which were independent of the TECC. Described below are two of these agencies, one of which works only tangentially with the regional TECC and a second which cosponsors programs.

The Riverton Professional Development Center was supported by local district general funds, Chapter I monies, and state staff development transition monies. The project incorporated the elements of three agencies formerly

serving the area, including a PDPIC, a school resource center, and a federal teacher corps project. Multiple levels of instructional skills training and curriculum construction were provided for administrators and teachers.

The center director's approach to staff development reflected a philosophical commitment to building increased local capacity for long-term staff renewal. The director said:

> TECCs don't solve the ultimate problem of school improvement. We need to focus on the district and the school as a base where real change will occur as a result of commitment to the staff development process. There is a place for state level leadership and I support the workshops and networking services like the TECCs. However, on a long-range basis, a district and a school have to institutionalize a staff development effort.

Reflecting the need to build school site capacities for staff renewal, the professional development center offerings included:

- Instructional support teams: six to eight days of training for each participating principal and several teachers
- Clinical supervision: nine days of clinical teaching and supervision over a year in adapted components of Hunter's instructional effectiveness model
- Strategy cycles: one- or two-day staff development sessions on particular topics of interest (e.g., district management, reading through literature, discipline, and content area assistance)

Through these offerings, center staff attempted to build a team approach to staff development. Their philosophy that behavior change was incremental acknowledged that staff needed to work with those "who were ready" to help schools build a long-term commitment to staff development.

Elementary and secondary teachers were trained in quite similar settings. The staff felt that the historic distinction made between these teachers was

not as great as it appeared. The key was to provide instructional examples which reflected the classrooms of whatever teachers are being trained. While more elementary than secondary teachers were being trained at the time of the case study, the TECC believed the way to remedy this issue was to get secondary people with training and potential into the school to provide some positive instructional experiences for other teachers.

Providing positive instructional experiences for teachers, and opportunities for overtime coaching and classroom level support, were also key elements to the training provided at the Schaefer Learning Center based in a county office. Initially configured as a three-district consortium for coordinating staff development activity, the service grew to 11 districts and then became a federal teacher center. The center served 1,458 teachers the first implementation year. The two elements of the learning center program were: a teacher center component funded at $159,000 by county office Chapter 2 monies and $2 per ADA from subscribing districts for the 1982-83 year, and a coaching/advisor component funded at $262,000 by a competitive private foundation grant.

As stipulated by their policy board, the learning center offerings included:

- Professional development workshops on the technology of teaching, classroom management, and curriculum development
- Personal growth workshops to help teachers cope with the school as an organization in decline including consolidation of schools, teacher reassignment, and school reorganization
- Public relations
- New age issues including dealing with an information-based rather than an industrial-based society, use of computers, etc.

- o Changing family structure including recognizing and changing stereotypes about alternative family structures

The private foundation coaching/advisor program, in its second single-year funding cycle, provided teacher advisors who worked on schoolwide staff development issues in target schools. Eight exemplary teachers were identified and trained as coaches in clinical teaching and supervision, the Fred Jones classroom management model, and facilitating/consensus planning. These teachers were assigned to two target schools each where they were given the general mission of working on teacher-identified professional development needs.

According to a February 1983 survey of teachers in target schools, the advisors provided resources, support, and leadership in curriculum design, instructional techniques, and classroom management. The unstructured character of the advisor's work settings had positive and negative trade-offs. On the positive side, the advisors were in a position to be able to help teachers with whatever they needed most and identify multiple routes to help "bring teachers around" to a staff development mode. On the negative side, the advisors felt unfocused and were pressured by the variety of demands on their services.

Like the Riverton Professional Development Center, the Schaefer Learning Center actively trained administrators. Staff development research has repeatedly found that administrative commitment and involvement in staff development activities is essential for long-term effects (Joyce and Bush, 1982; Goodlad, 1982). Toward that end, one of the criteria for consideration as a target school in the coaching/advisor program was a commitment by both teachers and administrators at a school site about the need and use of the advisor.

All but two of the 22 districts in the county subscribed to the teacher learning center. One of the larger districts opted to use their state staff development monies to purchase computer hardware instead of participating in a staff development program.

The teacher learning center and the TECC had overlapping constituencies which complicated service delivery. For example, services provided by the TECC served an entire region, while the Schaefer Learning Center served only member districts. Further, the learning center had a longer track record than the TECC in providing training in instructional methodology and use of computers. In addition, the TECC organizational process took time, while the Learning Center was already operational. As one director said:

> Even though the TECC is reconfigured from a variety of other service agencies and has a lot of talented people on its staff, it is still a new organization, as such, is working out the organizational arrangements of any new organization--getting its governance in place, and making new service decisions.

Responsiveness to the field, created by proximity to teachers and schools, was key to the delivery of staff development in both of these agencies. However, both the director of the Schaefer Learning Center and the Riverton Professional Development Agency valued the TECC concept of a networking "umbrella" for coordinating staff development activity even though the TECC couldn't work as intensively with local schools. One non-TECC agency director said:

> The field needs a regional staff development network, like the TECC, as well as county services like the learning center and site based activities like the coaching program. Multiple levels of activity are needed, because that's how we will build a network. The TECC cannot hope to provide site based staff development to all schools, but even the best school based program cannot replace the coordinating capabilities of the TECC.

Independently and spontaneously, both non-TECC directors also added that the problem with the TECC concept was that it was underfunded. Both of these individuals had been in staff development networks before and perceived them as invaluable. However, they felt that unless TECCs were reasonably funded to be able to provide substantive service rather than "just a name" to add to a list of sponsoring agencies, the concept wasn't going to succeed. Said one:

> We are all working hard to develop good materials and processes for staff training, and it is remarkable how materials used in a site very different from one's own can be applicable in another. However, if the level of funding is so low that the only school-based service that the TECC can provide is a newsletter, then you have to fund some other agency or component to provide intensive site-based activity. The newsletter or shotgun approach to staff development simply won't succeed in creating real school improvement.

Discussion

Interviews with teachers, principals, county administrators, and non-TECC service agency staff provided support for the TECC concept in Region C. People perceived a need for both short-term staff development activities at an awareness level and more intensive training at individual sites. They saw the TECC as ultimately capable of providing both kinds of services. However, in the initial year of building an organization, the TECC had concentrated on a workshop approach which disseminated information and built a clientele and a network rather than intensive training at schools. These services were augmented by the more long-standing organizations (the learning center and professional development center) which were available for site-based activities.

An emerging problem in the delivery of regional staff development was the dissemination of county services for regional use. For example, if a county had a curricular/instructional workshop in mathematics, its first commitment was dissemination within its own boundaries. The delivery area of the TECC, however, spans county lines. Considerable negotiations ensued over appropriate dissemination of county-developed/TECC-related materials and program. TECC delivery decisions were influenced by what they had to offer, and, in some cases, the dissemination of information, products, and processes to distant geographical areas was a problem, especially when the most appropriate deliverer of services worked for the county rather than for the TECC.

The long-range goals of the Region C TECC were:

1. Provision of math and science content to teachers within the region
2. Continuation of work to integrate the microcomputer into the educational setting
3. Expansion of the resource bank for brokering staff development activities regionwide
4. Continuation of quality methodology and teacher training programs
5. Elevation of first-level training to more advanced training of trainers in content areas
6. Development of formal relationships with business and industry within the region

The policy board chairman summed up Region C TECC activities well:

> Even though we are reconfigured from a variety of other service agencies, we ARE a new organization. The most important thing we need to do now is to build credibility, and we can do that by providing a reasonable number of services well. We'll get to the rest of the state's agenda as soon as we can.

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